3GPP TSG-RAN WG2 #118-e [R2-2206176](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip)

Electronical meeting, 9 May – 20 May 2022

Agenda Item: 6.20.1

Source: Ericsson

Title: Summary of [AT118-e][210][71 GHz] RRC corrections (Ericsson)

Document for: Discussion, Decision

# Introduction

This document is to summarize the inputs from companies on the RIL issues in order to resolving the issues and attempt to finalize the RRC CR for 71 GHz.

* [AT118-e][210][71 GHz] RRC corrections (Ericsson)

Scope: Discuss RRC RIL for 71 GHz and provide proposals for resolution

Intended outcome: Discussion report in [R2-2206176](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip) (for online discussion) and final RRC CR in [R2-2206177](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip).

Deadline: Deadline 3

Deadline 3 (discussions for 2nd week Tue online):

* Comment deadline: Friday W1, 0800 UTC (for collecting views)
* Rapporteur proposals: Monday W2, 0900 UTC (proposed resolution of issues)
* Document deadline: Tuesday W2, 0900 UTC (report or agreed CRs)
  + Discussion may continue to 2nd phase (using Deadline 5) based on online decisions

# Summary

## Contact information

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
| Ericsson | Min Wang | min.w.wang@ericsson.com |
| LG Electronics | Gyeong-Cheol LEE | gyeongcheol.lee@lge.com |
| Nokia | Jarkko Koskela | jarkko.t.koskela@nokia.com |
| Intel Corporation | Seau Sian Lim | seau.s.lim@intel.com |
| ZTE | Eswar Vutukuri | eswar.vutukuri@zte.com.cn |
| Samsung | Taeseop Lee | taeseop.lee@samsung.com |
| Huawei, HiSilicon | Tao Cai | tao.cai@huawei.com |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Issues to resolve

As summarized in [1], rapporteur categorizes RIL issues into two groups. The first group contains the issues which may easily reach consensus. The second group contains the controversial issues. The issues in the two group are discussed separately.

### Group 1 – RIL issues for consensus

This group includes the following RIL issues.

* E048, I017, I027, I034, Z450, Z453, Z454, Z455, H707, S626
* Q300
  + *Rapp: suggested changes have been agreed in ASN.1 review adhoc webinar*
* N121
  + *Rapp: It may be sufficient to add a restriction in the field description*.

Changes for the above issues proposed by companies have been captured in the rapporteur CR [2].

Companies are invited to give comments in the below table for changes of the above issues captured in the rapporteur CR [2].

|  |  |
| --- | --- |
| **Company** | **Comments on changes of each issue in rapporteur CR** [R2-2205188](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205188.zip)   * **Whether changes of each issue are ok** * **Any suggestion to improve changes for specific issues** |
| LGE | Ok with changes for above RIL issues. |
| Nokia | Listed corrections seems fine |
| Intel | The changes looks ok to us |
| Samsung | [E048]: The new field “*overheatingAssistanceSCG-FR2-2-r17*” in *CG-ConfigInfo* seems to need the corresponding new field description. Or we can just use the same field name with the existing field (e.g., *overheatingAssistanceSCG-r17*).  Rapp->  Ok with the other changes for the above RIL issues. |
|  |  |

**Rapporteur summary**

Based Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

Companies are ok to the changes of group 1 RIL issues. There is one comment on the field overheatingAssistanceSCG-FR2-2-r17. Rapporteurs agrees with the suggested changes, i.e., a new field description will be added in the RRC rapporteur CR (i.e., [R2-2206177](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip)).

### Group 2 – controversial RIL issues

This group includes the following RIL issues.

E134, E135, E136, Z451, Z452, E801

E049, N109

*Rapp: relevant contribution* [*R2-2205191*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205191.zip) *has submitted to the main session, so we can just wait for outcome in the main session*.

E133

*Rapp: relevant contributions* [*R2-2205196*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205196.zip) *and* [*R2-2204397*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205397.zip) *have submitted to the main session, so we can just wait for outcome in the main session.*

N110

*Rapp: this change is not introduced due to 71 GHz. Therefore, changes are to be handled by other topics (i.e., IOT).*

In this section, rapporteur would like to check companies views on the below issues

E134, E135, E136, Z451, Z452, E801

#### Question on E134

RAN1 has defined new values for 120, 480 and 960 kHz in 38.213 Table 10.4-1.

In the table, the value of 160 symbols and 320 symbols are introduced for SCS 480 and 960 kHz and UE processing capability 1.

Therefore, new values are needed to be introduced for RRC parameter searchSpaceSwitchDelay.

As captured in [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip),

New scaled values (scaled by 16) of searchSpaceSwitchDelay for SCS 120, 480 and 960 kHz.

SearchSpaceSwitchConfig-r17 ::= SEQUENCE {

cellGroupsForSwitchList-r16 SEQUENCE(SIZE (1..4)) OF CellGroupForSwitch-r16 OPTIONAL, -- Need R

searchSpaceSwitchDelay-r17 INTEGER (10..832) OPTIONAL -- Need R

}

It is necessary to check companies’ views for the above changes.

***Q2-1: do companies agree that E134 is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| Nokia | Yes (but best that RAN1 confirms this) | These should come from RAN1 explicitly if needed |
| Intel | Yes maybe | It is not in the higher layer parameters list in R1-2202759. Agree with Nokia the changes is better to come from RAN1 explicitly. |
| ZTE | Yes |  |
| Samsung | Yes |  |
| Huawei, HiSilicon |  | Agree that these values should come from RAN1 explicitly. |

***Q2-2: if the answer of Q2-1 is yes, do companies agree to adopt changes captured in*** [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| ZTE | Yes |  |
| Samsung | Yes |  |

**Rapporteur summary**:

7 companies have provided comments. 3 out of 7 companies think the proposed change for E134 needs RAN1 confirmation. Rapporteurs suggests to not implement this change before RAN1 confirmation.

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1. Changes of RIL E134 captured in [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip) for supporting SCS 120, 480 and 960 kHz is pending for RAN1 confirmation.

#### Question on E135

For FR2-2, SCS 120,480 and 960 kHz are supported. Therefore, value range of si-WindowLength needs to be extended for higher SCS e.g., 480 and 960 kHz. The new values can be scaled by 8 compared to the existing values.

Changes have been proposed in [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip)

It is necessary to check companies’ views for the above changes.

***Q3-1: do companies agree that E135 is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| Nokia | Maybe | We are fine to do this to avoid any possible issues in the UE interpretation at which slot the window starts for higher SCSs |
| Intel | Yes |  |
| ZTE | Yes |  |
| Samsung | Yes |  |
| Huawei, HiSilicon | Yes |  |

***Q3-2: if the answer of Q3-1 is yes, do companies agree to adopt changes captured in*** [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes with comments | 1. update the CR to have the Need R for the field,  2. SCS 960 KHz is only configurable for SCell. Therefore, we only need to extend values for SCS up to 480kHz  3.update field description that the new values are only applicable to SCS 480 kHz, when new values are configured, UE ignores the legacy values |
| LGE | Yes, but | As indicated by Ericsson above, the current CR is not correct. Details can be discussed in the 2nd phase. |
| Nokia | Yes with updates from Ericsson comments |  |
| Intel | Yes with comments | Agree with Ericsson comments. Just for our understanding, if only need to extend values of SCS up to 480kHz, does the values need to be extended by 8 times? |
| ZTE | Yes, with comments | Agree with the updates from Ericsson |
| Samsung | Yes, with comments | Fine with the updates suggested by Ericsson. |
| Huawei, HiSilicon | Yes, with comments | Fine with the updates suggested by Ericsson. |

**Rapporteur summary**:

7 companies have added comments. All companies agree with the CR ***captured in*** [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip) considering the update suggested by Ericsson.

In addition, rapporteur has identified that there is another option to address ***E135***, referred to as Option 2. Changes suggested in [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip) with the proposed update for ***E135*** is referred to as **Option 1.**

Option 2:

Extend si-WindowLength as follows

si-WindowLength                   ENUMERATED {s5, s10, s20, s40, s80, s160, s320, s640, s1280, s2560-v17xy, s5120-v17xy},

sing the extension marker "..." will cost 3 octets in SIB1. As the ENUM field for si-WindowLength allows signaling of 16 values out of which only 9 values are currently used, it is better to add new values in si-WindowLength directly for 480 kHz.

Therefore, rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1. To discuss the following options for RIL E135 To adopt changes of RIL E135 captured in[R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip) in the RRC rapporteur CR ([R2-2206177](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip)) with the following update
   1. Option 1: changes in [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip) with the following update
      1. Add the need code R for si-WindowLength
      2. Exclude extended values for SCS 960 kHz
      3. Update field description to capture that the new values are only applicable to SCS 480 kHz, when new values are configured, UE ignores the legacy values.
   2. Option 2: Directly extend the value for SCS 480 kHz in si-WindowLength, i.e.,
      1. si-WindowLength                   ENUMERATED {s5, s10, s20, s40, s80, s160, s320, s640, s1280, s2560-v17xy, s5120-v17xy}

#### Question on E136

RAN2 has agreed to extend value range for DRX RTT timer for SCS 480 kHz and 960 kHz. Similarly, value range of drx-RetransmissionTimerUL/drx-RetransmissionTimerDL also need to be extended for SCS 480 kHz and 960 kHz. Same as RTT timer, the new values can be scaled by 8 compared to the existing values.

As discussed in [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip), there may be two options to extend the values.

*Option 1:*

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl512-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

*Option 2:*

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl480-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

***Q4-1: do companies agree that E136 is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| Nokia | Yes |  |
| Intel | uncertain | Extending DRX RTT timer for SCS 480 kHz and 960 kHz is to maintain the gNB processing delay. It is not clear why this extension is needed. But we are fine if majority wants to extend. |
| ZTE | Yes |  |
| Samsung | Yes |  |
| Huawei, HiSilicon | No | Retransmission timer value corresponds to the time needed for the DL/UL traffic data are delivered across the air interface. Supposed the same traffic bits (e.g. a same "webpage") is delivered with higher SCS, and used MCS is the same, the needed number of "symbols" would be the same as with lower SCS. With shorter symbol duration of higher SCS, the needed delivering time is shorter. So, we don't see the need to expand retransmission timer value 8 times. |

***Q4-2: if the answer of Q4-1 is yes, which options do companies agree to adopt for E136 in*** [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip)***?***

***Option 1:***

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl512-v17xy, sl640-v17xy, sl768-v17xy, sl896-v17xy, sl1024-v17xy, sl1280-v17xy, sl2560-v17xy, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

***Option 2:***

*ENUMERATED {*

*sl0, sl1, sl2, sl4, sl6, sl8, sl16, sl24, sl33, sl40, sl64, sl80, sl96, sl112, sl128, sl160, sl320, sl480-v17xy, sl640-v17xy, sl960-v17xy, sl1280-v17xy, sl2560-v17xy, spare10, spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1*

*}*

***Other***

|  |  |  |
| --- | --- | --- |
| Company | Options | Comments |
| Ericsson | Option 2 | Option 2 is implemented in [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip) |
| LGE | Option 1 |  |
| Nokia | Either works |  |
| ZTE | Option 1 | Implementation in [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip) for option 2 is not complete |
| Samsung | No strong view | But option 1 should have *spare10, spare9* as in option2?  Rapp🡪 sorry, there are typos in Option 2, actually, option 2 gives fewer values than Option 1. |

**Rapporteur summary**:

7 companies have provided comments. 1 company disagrees the changes. 1 company is neutral. However, rapporteur thinks it is necessary to adopt changes to keep same processing delay for gNB when supporting high SCS values as the low SCS values. Therefore, rapporteur would like to follow the majority view, i.e., adopt changes. there were typos in Option 2. It is actually that Option 2 uses fewer spare bits than option 1. Meanwhile, Option 1 gives the same absolute time as lower SCS. Rapporteur suggests to adopt Option 2.

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1. To discuss whether to adopt changes of RIL E136 captured in [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip) in the RRC rapporteur CR ([R2-2206177](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip)) (6/7)

#### Question on Z451 and Z452

Both issues are discussed in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip),

For Z451, new SCS has been added for FR2-2**.** However, the PDCCH-Config for paging and for PDCCH monitoring in general has not been updated to consider the new SCS for the PDCCH occasions. Hence new values need to be added for this. The following proposal was proposed in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip) accordingly.

*Proposal 1: For PDCCH monitoring occasions new values should be defined to cover the introduction of 480 KHz and the 960 KHz SCS.*

It is necessary to check companies’ views for the issue.

***Q5-1: do companies agree that*** Z451 ***is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| Nokia | Yes |  |
| Intel | Yes |  |
| ZTE | Yes |  |
| Samsung | Yes |  |
| Huawei, HiSilicon | Yes |  |

***Q5-2: if the answer of Q5-1 is yes, do companies agree to adopt changes in*** [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| Nokia | Yes |  |
| Intel | Yes |  |
| ZTE | Yes |  |
| Ericsson | Partly Yes with comments | Rapp->  We have double checked with RAN1 colleagues that, some changes are needed  *1. SCS 960 kHz is only configurable for SCell. Therefore, we only need to extend values for SCS up to 480kHz*  *2. the following range range*          sCS960KHZquarterT-SCS480halfT                            SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..35839),          sCS960KHZoneEighthT-SCS480quarterT                       SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..71679),          sCS960KHZoneSixteenthT-SCS480KHZoneEighthT               SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..143359)  should be updated as according to R2-2203418,          sCSS480KHZoneEighthT                            SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..35839),          sCS480KHZoneSixteenthT                       SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..71679), |
| Samsung | Yes, but | For Ericsson’s comment, need further check with RAN1 whether 960 kHz SCS is only applicable to SCell, and if so, 480 kHz can only be added. |
| Huawei, HiSilicon |  | then only 480kHz addition is needed. |

For Z452, as part of the coverage enhancement, one TB may be scheduled across multiple slots. *numberOfSlots-TBoMS* is used to indicate the number of slots allocated for TB processing. However, for multiple PUSCH, each PUSCH is confined within one slot and the corresponding agreements are as below:

|  |
| --- |
| Agreement:  Scheduling PUSCH over multiple slots/mini-slots by single DCI supports at least multiple continuous PUSCHs with separate TBs   * Each TB is mapped to at most one slot or one mini-slot |

|  |
| --- |
| Agreement:   * For a UE and for a serving cell, scheduling multiple PDSCHs by single DL DCI and scheduling multiple PUSCHs by single UL DCI are supported.   + Each PDSCH or PUSCH has individual/separate TB(s) and each PDSCH/PUSCH is confined within a slot.   + FFS: The maximum number of PDSCHs or PUSCHs that can be scheduled with a single DCI   + FFS: Whether multiple PDSCH scheduling applies to 120 kHz in addition to 480 and 960 kHz   + At least for 120 kHz SCS, single-slot scheduling with slot-based monitoring will still be supported as specified in Rel-15/Rel-16 |

The first agreement above is for multiple PUSCH introduced in Rel-16 NR-U and the second agreement is for multiple PUSCH introduced in extending to 71GHz. According to these agreements, each PUSCH of multiple PUSCH is confined within one slot, so *numberOfSlots-TBoMS* is not applicable for multiple PUSCH introduced in Rel-16 NR-U and in Rel-17 extending to 71GHz. It is hence proposed to clarify in the field description of *numberOfSlots-TBoMS* that this field is not applicable for pusch-TimeDomainAllocationListForMultiPUSCH-r16 and pusch-TimeDomainAllocationListForMultiPUSCH-r17.

*Proposal 3: It is proposed to clarify in the field description of numberOfSlots-TBoMS that this field is not applicable for pusch-TimeDomainAllocationListForMultiPUSCH-r16 and pusch-TimeDomainAllocationListForMultiPUSCH-r17 as follows:*

|  |
| --- |
| ***numberOfSlots-TBoMS***  Number of slots allocated for TB processing over multi-slot PUSCH for DCI format 0\_1/0\_2 (see TS 38.214 [19], clause 6.1.2.1). It is not applicable to *pusch-TimeDomainAllocationListForMultiPUSCH-r16* and *pusch-TimeDomainAllocationListForMultiPUSCH-r17.* |

It is necessary to check companies’ views for the issue.

***Q5-3: do companies agree that*** Z452 ***is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | uncertain |  |
| LGE |  | It seems no critical clarification, but no strong view, can follow majority view. |
| Nokia | No view | Does not look critical to us |
| Intel |  | This seems to touch Rel-16 |
| ZTE | Yes | It would be good to avoid such configuration as it would be erroneous |
| Samsung | Yes |  |
| Huawei, HiSilicon | comments | Prefer not to do this change based on our interpretation of RAN1 agreement. Can be directly from RAN1. |

***Q5-4: if the answer of Q5-3 is yes, do companies agree to adopt changes in*** [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip)***?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | uncertain | Perhaps no change is needed, it is sufficient to leave to gNB implementation. |
| LGE |  | It seems no critical clarification, but no strong view, can follow majority view. |
| Nokia | no view | Does not look critical to us |
| Intel |  | Agree with Ericsson to leave to gNB implementation. |
| ZTE | Yes | Proponent |
| Samsung | Yes | Agree with the proposal to make the specification clear. |

**Rapporteur summary**:

7 companies gave comments on Z451 and Z452. For Z451, most of companies agree with changes suggested in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip) (excluding changes for SCS 960 kHz). However, rapporteur has realized that there is another option to address Z451, referred to as Option 2. Changes suggested in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip) for Z451 is referred to as **Option 1.**

**Option 2** – Update the description of the field *firstPDCCH-MonitoringOccasionOfPO*. i.e., SCS 480 kHz uses the same value range as SCS 120 kHz for all values of N.

For 71 GHz, slot group based PDCCH monitoring is mandatory configured to UE for 480 and 960 kHz SCS. With Option 2, there is no need to introduce new values (for SCS 480 kHz there are 4 slots within a slot group). Thus, the number of PDCCH monitoring occasions does not increase by a factor of 4, but remains the same as compared to 120 kHz SCS.

Similar as the RAN1 agreement for RA-RNTI, UE can refer to 120 kHz reference slot to determine the paging occasion during a paging cycle. In this case, we can keep the same value as 120 kHz SCS. The only change is to update field description of firstPDCCH-MonitoringOccasionOfPO, i.e., when N equals to 1T, T/4, T/8 and T/16, SCS 480 kHz uses the same value as SCS 120 kHz.

Rapporteur would like to include both options for further discussion.

1. To discuss the following options for RIL Z451
   1. Option 1: changes captured in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip)
   2. Option 2: Update the description of the field firstPDCCH-MonitoringOccasionOfPO to include the text i.e., SCS 480 kHz uses the same value range as SCS 120 kHz for all values of N.

For Z452, only 2 out of 7 companies agree with the changes in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip). Rapporteur would like to follow the majority view to not adopt changes proposed [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip).

1. Not adopt changes of RIL Z452 captured in [R2-2205554](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205554.zip) in the RRC rapporteur CR ([R2-2206177](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip)).

#### Question on E801

For this issue, A new *OverheatingAssistance-r17* IE for FR2-2 was added to *UEAssistanceInformation*. Since the legacy procedure supports reporting of overheating information for SCG (*overheatingAssistanceForSCG*) in (NG)EN-DC, the corresponding *UEAssistanceInformation* can be extended to also cover FR2-2.

Changes for E801 has been covered in [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip), [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip), [R2-2204872](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204872.zip). There are so fundamental differences of suggested CRs/TPs between the three contributions, except that the update of procedure text is missing in [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip).

The changes comprise

1. Introduce a new field *overheatingAssistanceForSCG-FR2-2* to provide overheating assistance information for SCG in (NG)EN-DC for FR2-2
2. update the procedural text in clause 5.6.10.3.

It is necessary to check companies’ views for the issue.

***Q6-1: do companies agree that*** E801 ***is a relevant issue?***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes |  |
| LGE | Yes |  |
| Nokia | Yes | For completeness we should do this |
| Intel | Yes |  |
| ZTE | Yes |  |
| Samsung | Yes |  |
| Huawei, HiSilicon | Yes |  |

***Q6-2: if the answer of Q6-1 is yes, do companies agree changes proposed in the contributions (***[R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip), [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip), [R2-2204872](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204872.zip)***)? E.g., which CR can be adopted***

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comments |
| Ericsson | Yes | Prefer to adopt changes captured in [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip) |
| LGE | Yes | Fine with R2-2205190 |
| Nokia | Any proposal is OK as long as it has procedural text as well |  |
| Intel |  | We can use R2-2205190 as baseline for further checking |
| ZTE | Yes | Fine with R2-2205190 |
| Samsung | Yes | Fine with R2-2205190 |
| Huawei, HiSilicon | Yes | Fine with R2-2205190 except in clause 5.6.10.3 one editorial: "and overheatingAssistance-v17xy (if configured to provide" should be "or overheatingAssistance-v17xy (if configured to provide", as this is negative sentence.  Rapp-> don’t get the point. Rapporteur thinks the current wording is correct. |

**Rapporteur summary**:

7 companies have provided comments, all companies agree to adopt changes captured in [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip).

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

1. To adopt changes of RIL E801 captured in [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip) in the RRC rapporteur CR ([R2-2206177](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_118-e\R2-220xxxx.zip)) with the wording change“and->or”

### Additional changes addressed in rapporteur CR

In additional, rappoertur CR has also added new/modified parameters in R1-2202541 and R1-2202759

1. SSB-PositionQCL-Relation-r17 with range {32, 64} in various places

o SIB2

o SIB3

o SIB4

o MeasObjectNR

o ServingCellConfigCommon

2. PDCCH-Config -> SearchSpaceExt:

* Extended value range for *searchSpaceSwitchTimer*
* Extended value range for *monitoringPeriodicityAndOffset*
* New *duration-17* for slot group monitoring

3. PDSCH-ServingCellConfig

* Added restrictions in the field description for *codeBlockGroupTransmission*

4. CG-Config:

* Extended value range for *cg-minDFI-Delay*

5. SlotFormatIndicator:

* Extended value range for CO-Duration

6. MeasObjectNR -> RMTC-Config:

* Added TCI state with reference serving cell ID

7. Renaming k2-r17 to k2-Ext-r17 according to outcome of ASN.1 review Adhoc webinar

8. Updated texts for the condition *MultiPUSCH*

Changes for the above issues proposed by companies have been captured in the rapporteur CR [2].

Companies are invited to give comments in the below table for changes of the above issues.

|  |  |
| --- | --- |
| **Company** | **Comments on changes of each issue**   * **Whether changes of each issue are ok** * **Any suggestion to improve changes for specific issues** |
| LGE | Ok with the changes. |
| ZTE | A list should be defined for ssb-PositionQCL-Cells-r17 in MeasObjectNR and InterFreqNeighCellInfo-v17xy in SIB4.  Rapp-> correct, we are going to address this comment in the RRC rapporteur CR.  For duration-r17 in SearchSpaceExt-v1700, the minimum value should be defined as 8 according to RAN1’s parameter list.  Rapp-> this is not fully correct. Indeed, the RAN1 parameter lists define the minimum value as 8. However, i*n RAN1 parameter list, the following stated*  *if duration-r17 is absent, the UE assumes the duration in slots is equal to L, L=4 for 480 kHz, and L=8 for 960 kHz.*  *however, this contradicts with the existing field description - If the field is absent, the UE applies the value 1 slot, except for DCI format 2\_0.*  *Therefore, it is better to always configure the value as >=4 for 480 kHz and as >=8 for 960 kHz explicitly.* |
|  |  |
|  |  |
|  |  |

**Rapporteur summary**:

1 company has provided comments on changes which have been already captured in rapporteur CR. Rapporteur has provided answers to the comments, without specific proposals.

Rapporteur would like to try to reach at least a consensus about the above highlighted points and thus would like to suggest:

# Conclusion

We have the following proposal:

[Proposal 1 Changes of RIL E134 captured in R2-2205192 for supporting SCS 120, 480 and 960 kHz is pending for RAN1 confirmation.](#_Toc103671868)

[Proposal 2 To discuss the following options for RIL E135 To adopt changes of RIL E135 captured inR2-2205193 in the RRC rapporteur CR (R2-2206177) with the following update](#_Toc103671869)

[a. Option 1: changes in R2-2205193 with the following update](#_Toc103671870)

[i. Add the need code R for si-WindowLength](#_Toc103671871)

[ii. Exclude extended values for SCS 960 kHz](#_Toc103671872)

[iii. Update field description to capture that the new values are only applicable to SCS 480 kHz, when new values are configured, UE ignores the legacy values.](#_Toc103671873)

[b. Option 2: Directly extend the value for SCS 480 kHz in si-WindowLength, i.e.,](#_Toc103671874)

[i. si-WindowLength                   ENUMERATED {s5, s10, s20, s40, s80, s160, s320, s640, s1280, s2560-v17xy, s5120-v17xy}](#_Toc103671875)

[Proposal 3 To discuss whether to adopt changes of RIL E136 captured in R2-2205194 in the RRC rapporteur CR (R2-2206177) (6/7)](#_Toc103671876)

[Proposal 4 To discuss the following options for RIL Z451](#_Toc103671877)

[a. Option 1: changes captured in R2-2205554](#_Toc103671878)

[b. Option 2: Update the description of the field firstPDCCH-MonitoringOccasionOfPO to include the text i.e., SCS 480 kHz uses the same value range as SCS 120 kHz for all values of N.](#_Toc103671879)

[Proposal 5 Not adopt changes of RIL Z452 captured in R2-2205554 in the RRC rapporteur CR (R2-2206177).](#_Toc103671880)

[Proposal 6 To adopt changes of RIL E801 captured in R2-2205190 in the RRC rapporteur CR (R2-2206177) with the wording change“and->or”](#_Toc103671881)

3.1 Proposals in priority order

**[Easy proposals]**

[Proposal 1 Changes of RIL E134 captured in R2-2205192 for supporting SCS 120, 480 and 960 kHz is pending for RAN1 confirmation.](#_Toc103671868)

[Proposal 5 Not adopt changes of RIL Z452 captured in R2-2205554 in the RRC rapporteur CR (R2-2206177).](#_Toc103671880)

[Proposal 6 To adopt changes of RIL E801 captured in R2-2205190 in the RRC rapporteur CR (R2-2206177) with the wording change“and->or”](#_Toc103671881)

**[For discussion]**

[Proposal 2 To discuss the following options for RIL E135 To adopt changes of RIL E135 captured inR2-2205193 in the RRC rapporteur CR (R2-2206177) with the following update](#_Toc103671869)

[a. Option 1: changes in R2-2205193 with the following update](#_Toc103671870)

[i. Add the need code R for si-WindowLength](#_Toc103671871)

[ii. Exclude extended values for SCS 960 kHz](#_Toc103671872)

[iii. Update field description to capture that the new values are only applicable to SCS 480 kHz, when new values are configured, UE ignores the legacy values.](#_Toc103671873)

[b. Option 2: Directly extend the value for SCS 480 kHz in si-WindowLength, i.e.,](#_Toc103671874)

[i. si-WindowLength                   ENUMERATED {s5, s10, s20, s40, s80, s160, s320, s640, s1280, s2560-v17xy, s5120-v17xy}](#_Toc103671875)

[Proposal 3 To discuss whether to adopt changes of RIL E136 captured in R2-2205194 in the RRC rapporteur CR (R2-2206177) (6/7)](#_Toc103671876)

[Proposal 4 To discuss the following options for RIL Z451](#_Toc103671877)

[a. Option 1: changes captured in R2-2205554](#_Toc103671878)

[b. Option 2: Update the description of the field firstPDCCH-MonitoringOccasionOfPO to include the text i.e., SCS 480 kHz uses the same value range as SCS 120 kHz for all values of N.](#_Toc103671879)

# Reference

1. R2- 2205189 - RIL issue list of running RRC CR for 71 GHz, Ericsson
2. R2-2205188 - Correction for Extending NR operation to 71 GHz. Ericsson
3. [R2-2204871](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204871.zip) - Correction to periodicityAndOffset for Ext 71GHz [H707], Huawei, Hisilicon
4. [R2-2204872](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2204872.zip) - Discussion on overheating assistance report for SCG in EN-DC, Huawei, Hisilicon
5. [R2-2205050](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205050.zip) - [S626] Clarification on drx-HARQ-RTT-TimerDL/UL, Samsung
6. [R2-2205051](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205051.zip) - [E048] Overheating assistance information for FR2-2 in (NG)EN-DC, Samsung
7. [R2-2205052](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205052.zip) - [E048] Overheating information for FR2-2 in (NG)EN-DC (38.331), Samsung
8. [R2-2205053](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205053.zip) - [E801] Overheating information for FR2-2 in (NG)EN-DC (36.331), Samsung
9. [R2-2205190](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205190.zip) - Correction on RIL issue E801, Ericsson
10. [R2-2205191](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205191.zip) - Correction on RIL issue E049, Ericsson
11. [R2-2205192](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205192.zip) - Correction on RIL issue E134, Ericsson
12. [R2-2205193](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205193.zip) - Correction on RIL issue E135, Ericsson
13. [R2-2205194](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205194.zip) - Correction on RIL issue E136, Ericsson
14. [R2-2205196](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205196.zip) - Discussion on RIL issue E133, Ericsson
15. R2-2205554 - Control plane issues for NR operation above 71 GHz, ZTE Corporation, Sanechips

# Appendix